

## STABLE MICROBUBBLE PRECURSORS

### ABSTRACT

A microbubble preparation formed of a plurality of microbubbles comprising a first gas and second gas surrounded by a membrane such as a surfactant, wherein the first gas and the second gas are present in a molar ration of from about 1:100 to abut 1000:1, and wherein the first gas has a vapor pressure of at least about  $(760 - X)$  mm Hg at 37°C, where x is the vapor pressure of the second gas at 37°C, and wherein the vapor pressure of each of the first and second gases is greater than about 75 mm Hg at 37°C; also disclosed are methods for preparing microbubble compositions, including compositions that rapidly shrink from a first average diameter to a second average diameter less than about 75% of the first average diameter and are stabilized at the second average diameter; methods and kits for preparing microbubbles; and methods for using such microbubbles as contrast agents.